CERTIFICATE OF INSTALLATION		CF2R-PLMB-20-H
Single Dwelling Unit Hot Water System Distribution		(Page 1 of 3)
Project Name:	Enforcement Agency:	Permit Number:
Dwelling Address:	City	Zip Code

A. General System Information		
1.	Water Heating System Name:	From CF-1R
2.	Select Distribution Type:	<<user select from list: C. HERS-Verified Pipe Insulation Credit (PIC-H); or D. HERS-Verified Parallel Piping (PP-H); or E. HERS-Verified Compact Hot Water Distribution System (CHWDS-H); or F. HERS-Verified Point of Use (POU-H); or G. HERS-Verified Demand Recirculation Manual Control (RDRmc-H);or H. HERS-Verified Demand Recirculation Sensor Control (RDRsc-H)

B. Mandatory Requirements for all Dwelling Unit Domestic Hot Water Distribution Systems	
1.	All hot water piping insulated from the water heater to the kitchen fixture or appliance with R3.6 or 1 inch thick of insulation.
2.	All piping with a nominal diameter of 3/4 inch (19 millimeter) or larger must be insulated with R3.6 or 1" of insulation.
3.	The first 5 feet of hot and cold water pipes shall be insulated from the storage tank with R3.6 or 1" of insulation.
4.	All elbows and tees shall be fully insulated.
5.	Where insulation is required, no piping shall be visible due to insulation voids.
6.	All insulation shall fit tightly to the pipe
7.	All piping associated with a domestic hot water recirculation system regardless of the pipe diameter must be insulated
8.	Piping from the heating source to storage tank or between tanks must be insulated
9.	Piping buried below grade must be installed in a water proof and non-crushable casing or sleeve that allows for installation, removal, and replacement of the enclosed pipe and insulation.
10.	Hot water pipes to kitchen islands insulated
The responsible person's signature on this Certificate of Installation indicates the system identified on this Certificate has complied with all applicable requirements specified in this Table.	

C. (PIC-H) HERS-Verified Pipe Insulation Credit << Table C appears only if (PIC-H)- is selected in A2.>>	
1.	HERS verification of All hot water piping 1" and smaller shall be insulated to R-3.6 and be 1 inch thick. Piping with a diameter larger than 1 inch shall comply with the insulation requirements in Table 120.3-A.
The responsible person's signature on this Certificate of Installation indicates the system identified on this Certificate has complied with all applicable requirements specified in this Table.	

D. (PP-H)-HERS-Verified Parallel Piping << Table D appears only if (PP-H)- is selected in A2.>>	
1.	Central manifold have 8 feet or less of pipe between manifold and water heater
2.	Manifolds that include valves the manifold must be readily accessible in accordance with the plumbing
3.	Hot water distribution system piping from the manifold to the fixtures and appliances must take the most direct path. Ex Piping from a second story manifold cannot supply the first floor
4.	The hot water distribution piping must be separated by at least two inches from any other hot water
The responsible person's signature on this Certificate of Installation indicates the system identified on this Certificate has complied with all applicable requirements specified in this Table.	

E. (CHWDS-H) HERS-Verified Compact Hot Water Distribution System << Table E appears only if (CHWDS-H)- is selected in A2>>		
1.	Number of floors in the building	From CF-1R
2.	Conditioned floor area	From CF-1R
3.	Value for HERS verification –The maximum measured distance in feet of a straight line from the water heater to the furthest point of use For the floor area served.	<< Floor Area Served = Conditioned Floor Area/Number of floors (E1/E2). Then display Maximum Measured Water Heater To Use Point Distance from TABLE E1 below >>
The responsible person's signature on this Certificate of Installation indicates the system identified on this Certificate has complied with all applicable requirements specified in this Table.		

F. (POU-H)-HERS-Verified Point of Use<< Table F appears only if (POU-H)- is selected in A2.>>		
1.	Determine the allowed length of piping for the longest run terminating in: 3/8" - For only one pipe size = 15ft For multiple pipe sizes the allowed length of 3/8" piping is 7.5ft, of ½" piping is 5ft, and ¾" piping is 2.5ft. ½" - For only one pipe size = 10ft For multiple pipe sizes the allowed length of ½" piping is 5ft, and ¾" piping is 2.5ft. ¾" - For only one pipe size = 5ft	
2.	Value for HERS verification –The maximum measured distance in feet of pipe from a water heater to the any point of use.	<<Display from TABLE F1 below for Point of Use
The responsible person's signature on this Certificate of Installation indicates the system identified on this Certificate has complied with all applicable requirements specified in this Table.		

G. (RDRmc-H) - HERS-Verified Demand Recirculation Manual Control<< Table G appears only if (RDRmc-H)- is selected in A2.>>	
1.	Verify the controlled recirculation systems operate "on-demand", meaning that pump operation shall be initiated shortly prior to the hot water draw. The controls shall operate on the principal of shutting off the
2.	If more than one loop installed each loop shall have its own pump and controls
3.	Verify that the pump, demand controls and thermo-sensor are present
4.	Manual switches are located in the kitchen, all bathrooms, and any hot water use location that is at least 20 feet (measured along the hot water piping) from the water heater
5.	Manual controlled systems may be activated by wired or wireless button mechanisms
The responsible person's signature on this Certificate of Installation indicates the system identified on this Certificate has complied with all applicable requirements specified in this Table.	

H.(RDRsc-H) HERS-Verified Demand Recirculation Sensor Control<< Table H appears only if (RDRsc-H)- is selected in A2.>>	
1.	Verify the controlled recirculation systems operate "on-demand", meaning that pump operation shall be initiated shortly prior to the hot water draw. The controls shall operate on the principal of shutting off the
2.	If more than one loop installed each loop shall have its own pump and controls
3.	Verify that the pump, demand controls and thermo-sensor are present
4.	Sensor controls are located in the kitchen, all bathrooms, and any hot water use location that is at least 20

5.	Sensor controlled systems may be activated by wired or wireless button mechanisms

The responsible person's signature on this Certificate of Installation indicates the system identified on this Certificate has complied with all applicable requirements specified in this Table.

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Installation documentation is accurate and complete.

Name:	Signature:
Company :	Date:
Address:	CEA or CEPE or HERS Certification # If Applicable:
City/State/Zip:	Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

1. I certify under penalty of perjury, under the laws of the State of California, the information provided on this Certificate of Installation is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for construction, or an authorized representative of the person responsible for construction (responsible person).
3. I certify that the installed features, materials, components, or manufactured devices identified on this certificate (the installation) conforms to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the enforcement agency.
4. I understand that a HERS rater will check the installation to verify compliance, and that if such checking identifies defects, I am required to take corrective action at my expense. I understand that Energy Commission and HERS provider representatives will also perform quality assurance checking of installations, including those approved as part of a sample group but not checked by a HERS rater, and if those installations fail to meet the requirements of such quality assurance checking, the required corrective action and additional checking/testing of other installations in that HERS sample group will be performed at my expense.
5. I reviewed a copy of the Certificate of Compliance (CF1R) approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF1R that apply to the installation have been met.
6. **I will ensure that a completed, signed copy of this Certificate of Installation shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Certificate of Installation is required to be included with the documentation the builder provides to the building owner at occupancy.** I will ensure that all Certificates of Installation are registered with a HERS Provider Data Registry for projects that require HERS verification.

Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)

Responsible Person's Name:		Responsible Person's Signature:
CSLB License:	Date Signed:	Position With Company (Title):
Is this installation monitored by a Third Party Quality Control Program (TPQCP)? ☐Yes ☐No		Name of TPQCP (if applicable):

CF2R-PLMB-20-H Instructions

TABLE E1 **Compact Hot Water Distribution System-(CHWDS)**	
Floor Area Served (ft2)	Maximum Measured Water Heater To Use Point Distance (ft)
< 1000 1001 – 1600 1601 – 2200 2201 – 2800 >2800	28’ 43’ 53’ 62’ 68’

TABLE F1 **HERS-Verified Point of Use (POU-H)**	
Size Nominal, Inch	Maximum Measured Water Heater To Use Point Distance Length of Pipe (feet)
3/8” 1/2” 3/4”	15 10 5

Single Family Domestic Hot Water Measures Summary		
Verified Pipe Insulation Credit (PIC-H)	Inspection to verify that all hot water piping in non-recirculating systems is insulated and that corners and tees are fully insulated. No piping should be visible due to insulation voids with the exception of the last segment of piping that penetrate walls and delivers hot water to the sink, appliance, etc.	RA3.6.3.
Verified Parallel Piping (PP-H)	Inspection that requires that the measured length of piping between the water heater and single central manifold does not exceed five feet	RA3.6.4
Verified Compact Hot Water Distribution System (CHWDS-H)	Field verification to insure that the longest pipe run from any use point to the water heater serving that use point does not exceed a maximum length as Specified in RA 3.6.5.	RA3.6.5
Verified Point of USE (POU-H)	Inspection that all hot water fixtures in the dwelling unit, with the exception of the clothes washer, must be located within certain distance from a water heater based on pipe diameter. To meet this requirement, most houses will require multiple water heaters	RA3.6.6
Demand Recirculation: Manual Control (RDRmc-H)	Inspection to verify that all recirculating hot water piping is insulated and that corners and tees are fully insulated. No piping should be visible due to insulation voids	RA3.6.7
Demand Recirculation: Sensor Control(RDRsc-H)	Inspection to verify that all recirculating hot water piping is insulated and that corners and tees are fully insulated. No piping should be visible due to insulation voids.	RA3.6.8